

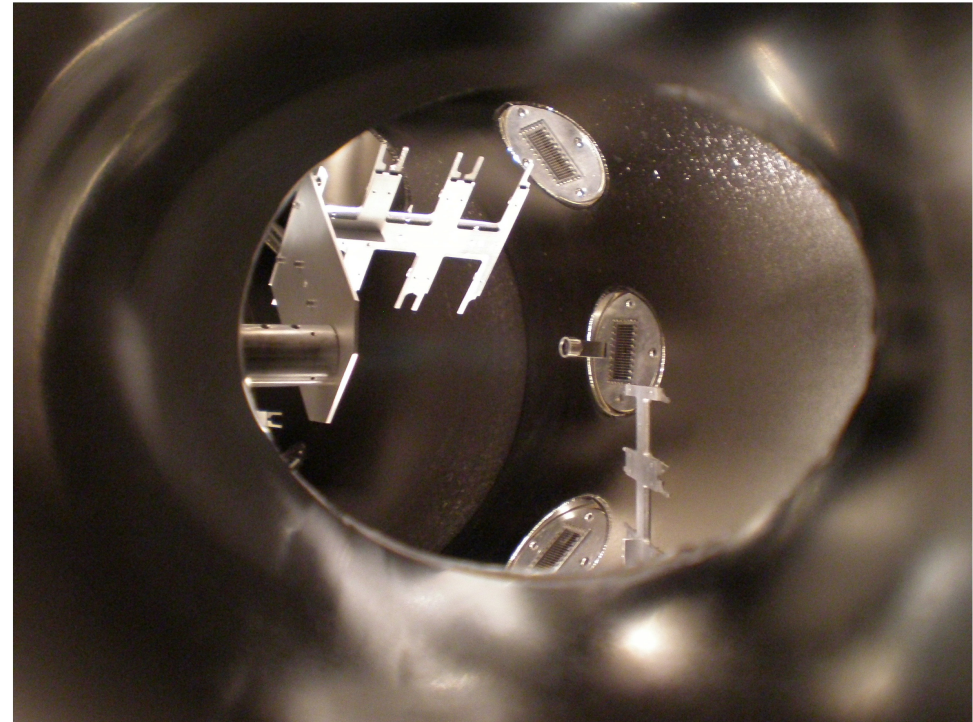
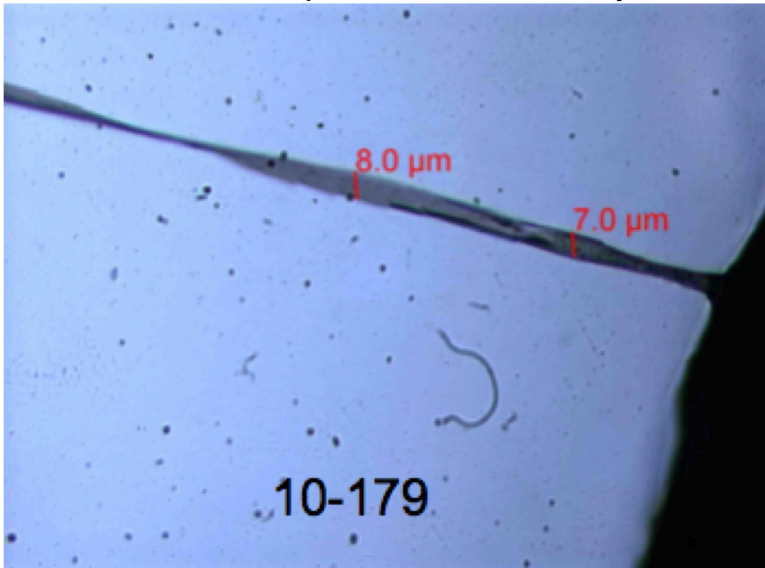
pC work Maint. Day 14.03.12

Good use made of long maintenance period:

- Target replacement:
Why time consuming?
- Noise pickup problem:
Patches applied to combat

Carbon ribbon targets

- Carbon targets on vert./horiz. ladder frames rotated through beam:
- Carbon targets very delicate:
~2.5 cm × 7-10 μ × 25 nm (100 atoms)



- Majority lost during 100 GeV run
- Slow cautious procedure to replace:
 - slow bleed up of vacuum (breezes break targets)
 - final installation on frame in tunnel; gentle placement into chamber
 - slow pump down of vacuum
- 42/48 targets replaced on March 14 maint. day (D. Steski)
- Few lost already, ladder misaligned, should be OK now...

pC noise pickup: patches

- Noise ruining many measurements in 100 GeV run
- Definitely correlated with filled proton bunches:
'ringing' after usual prompt beam EM pulse, seen on scope
- Roughly correlated with:
 - bunch intensity
 - 200 MHz cavity voltage
 - plate position of stochastic cooling pickup (next to Yel pC polarim.,
most significant local hardware change Run11→Run12)

Patches applied March 14 (quick, in limited time available)

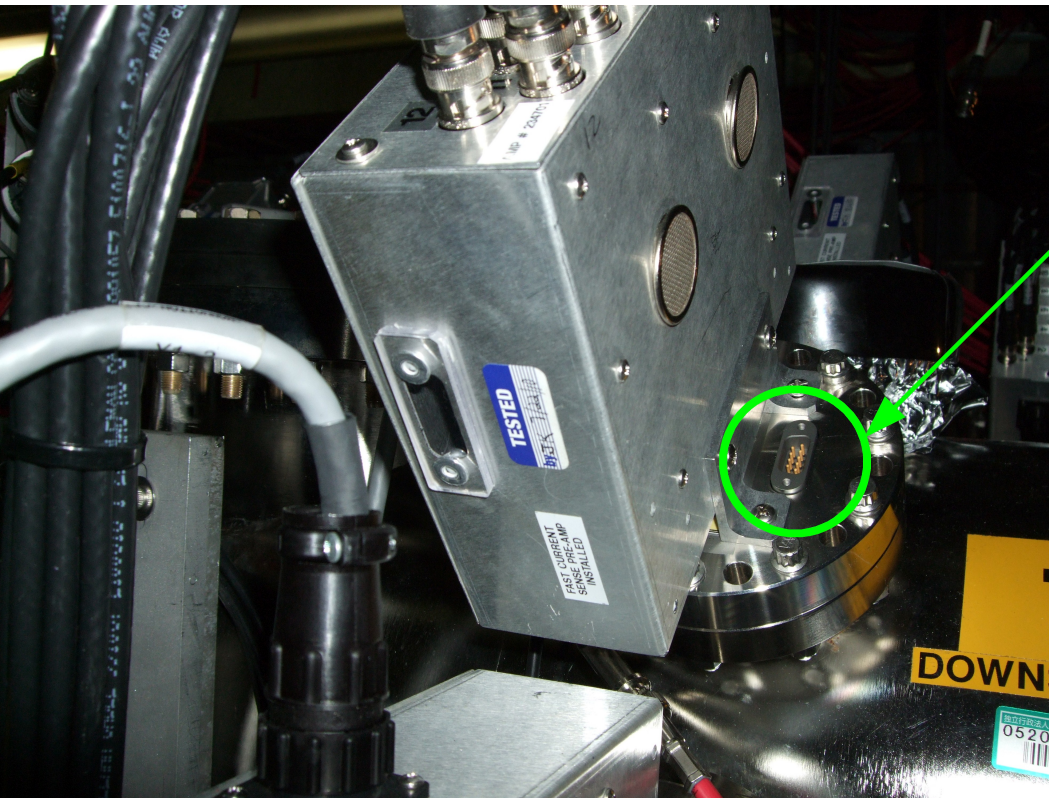
Detectors: moved a few farther from scat. chamber aperture

- Two of noisiest detectors replaced, two others moved back

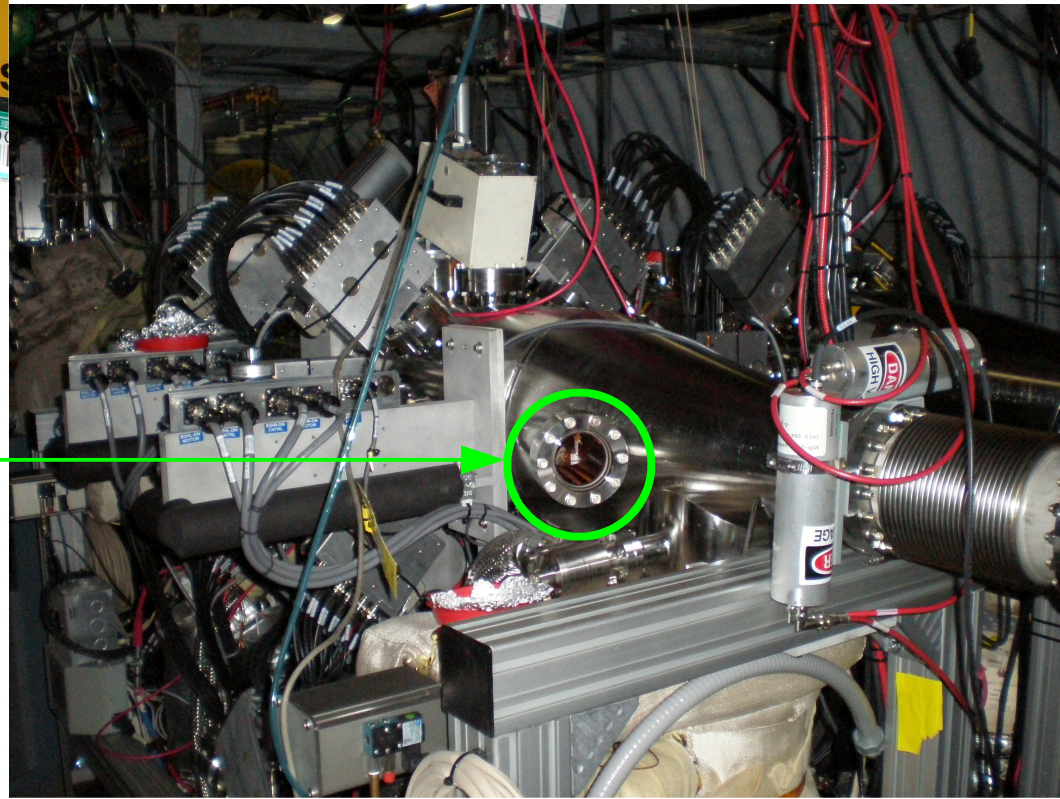
Multiplexer:

- In tunnel, switches 72 signal cables up/downstream polarims.
- Inactive lines back to preamps left floating inside housing
- Housing was not grounded
- Housing grounded to pC scat. chamber on March 14

pC noise pickup: patches



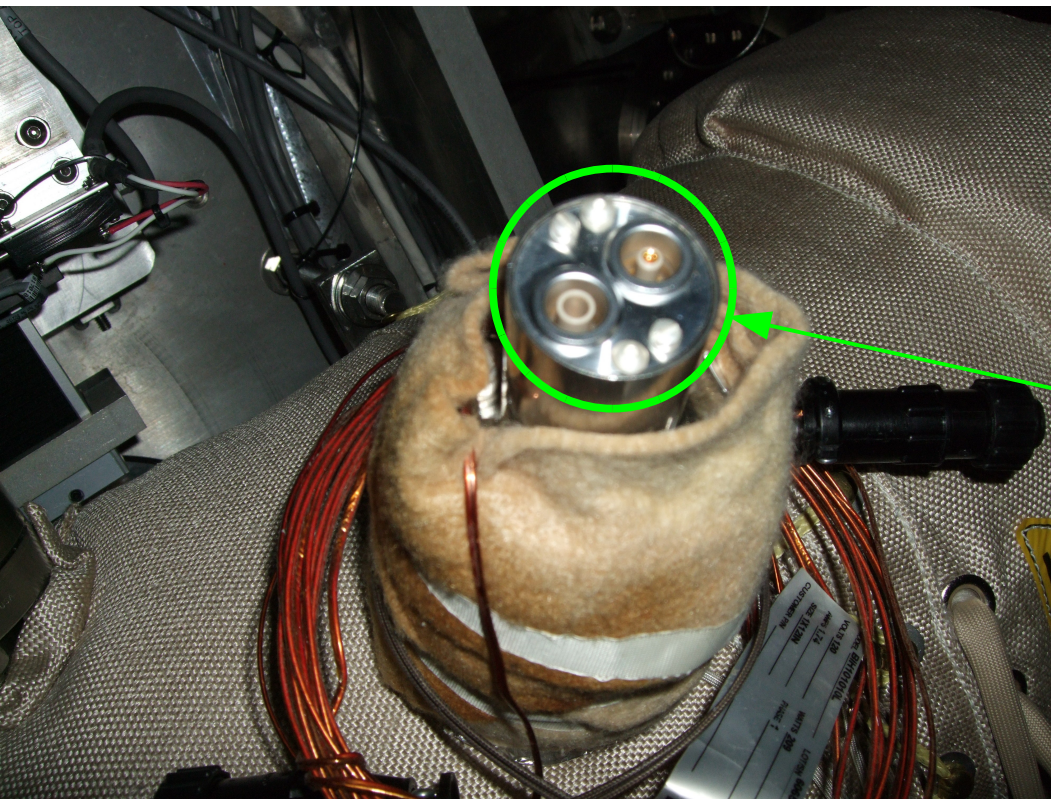
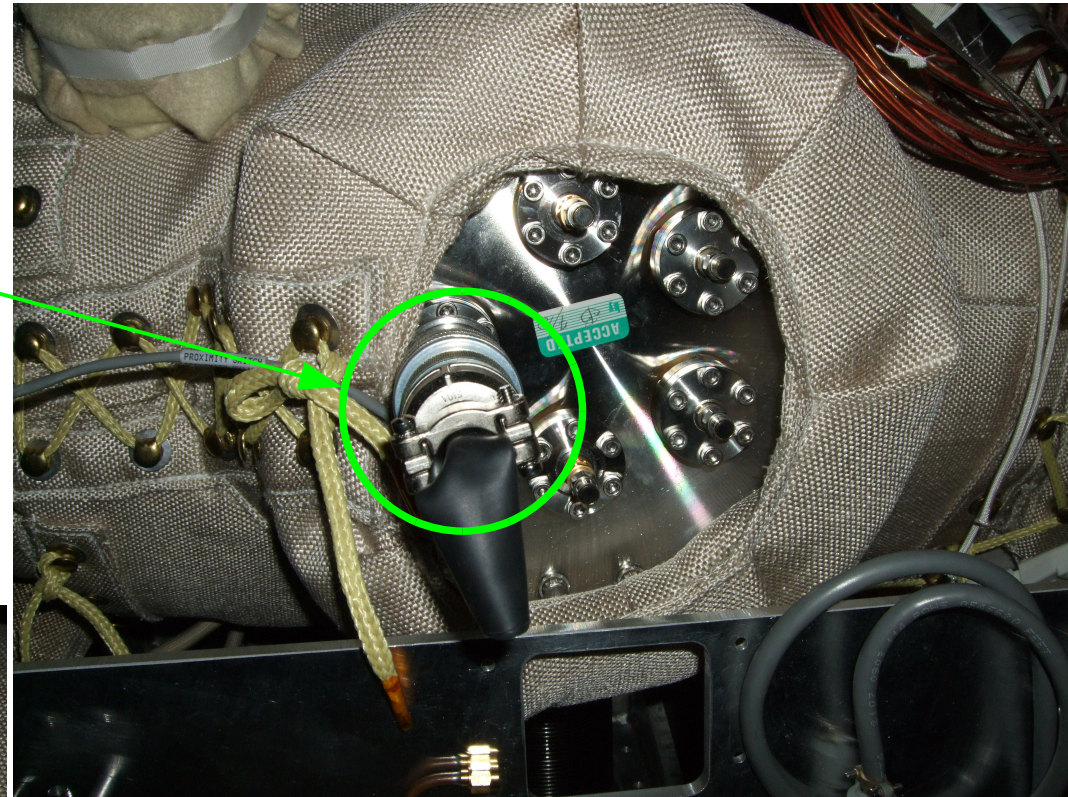
- 24 unused feedthroughs on detector flanges grounded



- 8 viewing port windows shielded with Al foil

pC noise pickup: patches

- Stochastic cooling pickup signal cable (twisted pair) removed and feedthrough terminated (M. Brennan)



- Stochastic cooling vacuum gauge feedthrough was floating, now grounded (M. Brennan)

Status so far

- So far no clear sign of pickup noise in pC data:
 - beam induced pulses much reduce, no 'ringing'
 - @ injection, same conditions as 100 GeV run (?)
 - @ store, new beam energy
- Watching with great interest as:
 - bunch currents increase
 - already passed 1.5×10^{11} , where problem seen in 100 GeV run
 - other bunch gymnastics are performed
- Actual source of problem not yet clear:
 - study as consistent with stable data taking
 - pursue long-term fixes